

Dr. R. Deane Sweeting's Report to the Local Government Board on the Prevalence of Diphtheria in the Gillingham Urban District, with especial reference to the question of Restriction on School Attendance.

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Assistant Medical Officer,
October 8th, 1896.

Twenty-one deaths from diphtheria having been recorded in the Registrar-General's Return for the first quarter of 1896 as occurring in the Gillingham Urban District, and twenty-nine more deaths from the same disease having been reported to the Board by the Medical Officer of Health of that District as having occurred in the second quarter of the year up to June 20th, inquiry was ordered by the Board. On being instructed to make this inquiry, I was commissioned to make special investigation into the circumstances under which a certain school in the district had been closed on account of the prevalence of diphtheria.

Gillingham Urban District is situated partly north and partly north-east of the Urban District of Chatham, and north-east of the city of Rochester, being practically continuous with each of those districts. Its area is 4,302 acres. The number of inhabited houses and the population at the censuses in 1881 and 1891, and as estimated for 1895, are as follow :—

	Year.	No. of Inhabited Houses.	Population.
	1881	3,416	20,644
	1891	5,144	27,872
	1895 (estimated)	5,615	31,683

LONDON:

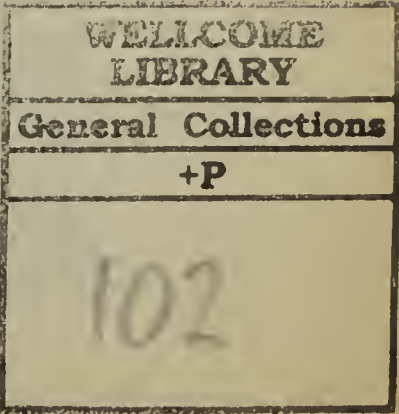
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1896.

Price Threepence.

No. 110



It is divided into three wards, viz.: Gillingham, New Brompton, and Brompton, certain particulars of which are shown in the following table (A.):—

TABLE A.

Showing, as estimated to the middle of 1895, for each of the Wards of the Gillingham Urban District, the Area in Acres, Number of Inhabited Houses, Population, Population per House, and Population per Acre.

Ward.	Area in Acres.	No. of Inhabited Houses.	Population.	Population per Acre.	Population per House.
Gillingham	2,923	1,110	6,250	2.1	5.6
New Brompton	662	3,935	19,228	29.0	4.9
Brompton	717	570	6,205*	8.7	10.9
Gillingham Urban District	4,302	5,615	31,683	7.4	5.6

* Including that of the barracks and dockyard extension.

Of these three wards, Gillingham, situated in the east of the district, is of a semi-rural character and sparsely populated; Brompton, the most westerly ward, consists of old property and many courts and alleys, and has the greatest population per house (which is largely due to the presence of the barracks), whilst New Brompton, in the centre, is more densely populated in area, consisting of numerous new streets. A large proportion of the inhabitants of the district is engaged in Government employ at the dockyard. The ground rises gradually towards the north and east of the district, and is more or less undulating throughout.

Geologically, the whole district is on the Chalk, which is overlaid in the northern parts by several distinct beds of Thanet Sand. There is a variable depth of soil above the Chalk and Thanet Sand; but in some parts the Chalk is very near the surface.

The following table (B.) shows the number of notifications and deaths from diphtheria in the Gillingham Urban District from 1890 to the present time:—

TABLE B.

Showing the Notifications of Diphtheria and Deaths from that Disease in the Gillingham Urban District from 1890.

Year.	Number of Notifications.	Number of Deaths.
1890	10	3
1891	13	3
1892	15	6
1893	18	7
1894	4	—
1895	5	3
1896. 1st quarter	52	21
2nd „	92	30
to July 23rd	8	1
1890-1896 (July 23rd)	217	74

Besides the 52 deaths from diphtheria in 1896 there were nine deaths registered from other throat diseases commonly found to be closely allied to, if not identical with, diphtheria, *e.g.*, croup, ulcerative croup, membranous laryngitis. This raises the mortality to 61 deaths.

The next table (C.) shows the number of notifications and deaths from diphtheria which occurred in 1895 and 1896.



TABLE C.

Showing the Number of Notifications and Deaths from Diphtheria in the Gillingham Urban District in 1895 and 1896.

	Year.	Month.	Number of Notifications.	Number of Deaths.
	1895	August	1	1
	"	October	1	1
	"	December	3	1
	1896	January	9	4
	"	February	21	10
	"	March	22	6
	"	April	25	7
	"	May	26	6
	"	June	41	17
	"	July (to 23rd)	8	1
			157	54

From a consideration of Table B. it is seen that fatal diphtheria has not been absent from the Gillingham Urban District since 1890, except in the year 1894. But it has only been since the beginning of 1896 that the disease has assumed any large dimension. A rise in notifications and in mortality began (Table C.) in February of this year, being on the whole maintained until June, when a further rise occurred. The incidence on the Gillingham Urban District during the first two quarters of 1896 was equal to an annual attack-rate of 9.0 per 1,000 living, and a mortality rate of 3.2 per 1,000 per annum.

The next table (D.) shows the number of notifications and deaths from diphtheria quarterly in 1895 and 1896 (to June) in the neighbouring urban districts of Rochester and Chatham, compared with those in the Gillingham Urban District.

TABLE D.

Showing the number of Notifications and Deaths from Diphtheria quarterly in 1895 and 1896 (to June), in the Rochester, Chatham, and Gillingham Urban Districts.

Year.	Quarter.	Rochester Urban District, Population, 28,682.		Chatham Urban District, Population, 31,657.		Gillingham Urban District, Population, 31,683.	
		Notifications.	Deaths.	Notifications.	Deaths.	Notifications.	Deaths.
1895	1st	3	—	3	1	—	—
"	2nd	3	—	3	1	—	—
"	3rd	6	—	2	—	1	1
"	4th	82	15	21	8	4	2
1896	1st	64	15	58	15	52	21
"	2nd	16	2	24	6	92	30

Fatal diphtheria, therefore, manifestation of which appeared in the Rochester Urban District in the fourth quarter of 1895, and marked excess of which showed itself in the Chatham Urban District in the same quarter of that year, did not appear to any conspicuous extent in the Gillingham Urban District until the first quarter of 1896. During the second quarter of 1896, it continued to increase in the Gillingham Urban District, whilst it diminished in the Rochester and Chatham Urban Districts. Of the total 152 cases of diphtheria notified in the Gillingham Urban District up to July 23rd, 1896, none occurred in Brompton ward, only three in Gillingham ward, of which one was fatal, and the remainder in New Brompton ward, to which ward the outbreak has, therefore, been practically confined.

The three wards of the Gillingham Urban District have already been contrasted in certain particulars, from which it has been seen that the New

Brompton ward considerably exceeds the other two in density of population per acre. As regards its sanitary circumstances, it may be said to be superior to the other two, particularly to the Brompton ward, where many grave nuisances and much dilapidated property still abound. Water supply, derived from springs in the Chalk, is common to all three wards, and is reported to be of excellent quality. Cesspool drainage, too, is common to all three wards, though this is in process of abolition throughout the whole district; a loan for 24,000*l.* having been sanctioned by the Board for main drainage, which is in process of rapid execution. The main drains have already been completed in Gillingham ward, and in one-third of New Brompton ward, though the house-connections are not yet made in either place.

A theory of causation of diphtheria in the district by disturbance of soil owing to these drainage operations was seen not to be borne out by the facts elicited.

As for defective sanitary circumstances, I visited the houses where the 1895 cases and the early cases in 1896 had occurred; but I could find no difference between them and the houses generally in New Brompton ward in this respect. In point of fact, New Brompton ward is, in regard of such circumstances, distinctly superior to Brompton ward, which contributed not a single case to the outbreak.

I was informed that building operations had been very actively carried out in New Brompton ward of late years, and that houses are no sooner built than they are occupied, often when not perfectly dry. Again, that this ward contains a relatively larger number of young married couples than the other two wards, and consequently a larger number of children of school age; in connexion with which latter statement, it may be mentioned that of the 144 notifications of diphtheria in the first two quarters of 1896, 112 were between 3 and 12 years of age, and that 45 of the 50 deaths during that time were within the same age-limit.

These two factors, viz., the premature occupation of new houses and the large number of susceptible children, coupled with the relatively high density of the population of New Brompton ward, may perhaps not unreasonably be held to have had some concern with the disproportionate incidence of fatal diphtheria on that ward.

It has already been shown that diphtheria prevailed in Rochester and Chatham Urban Districts before the outbreak in Gillingham Urban District. Now, not only are all these three urban districts practically one community, but New Brompton ward is topographically the nearest to Chatham Urban District. It is, therefore, of some significance, in respect of the distribution of the disease, that, during the period covered by the fourth quarter of 1895 and the first and second quarters of 1896, of 103 cases of diphtheria notified in the Chatham Urban District, 55 occurred in a portion of that district immediately west of the Luton Road, and closely contiguous to the New Brompton ward of the Gillingham Urban District.

There seems some ground, therefore, for holding that diphtheria owed its appearance in epidemic form in the Gillingham Urban District in 1896 to extension from Rochester and Chatham, where it had previously prevailed.

The measures taken by the Gillingham Urban District Council to combat the outbreak comprised (1) hospital isolation; (2) fumigation; (3) exclusion of particular children from school and closure of schools.

(1.) The Gillingham Hospital, built out of current rates, contains on the ground floor two eight-bedded wards, separated by a kitchen common to the whole establishment and by two nurses' sleeping-rooms. On the first floor are the caretaker's sitting-room and bed-room. The wards, kitchen, sleeping and sitting-rooms are in aerial communication with each other. Two tents, holding four more beds, were recently erected in the grounds, to supplement the accommodation in the wards, making 20 beds in all. Each ward is provided with a water-closet, which opens directly into the ward without any intervening cross-ventilation. There is a very small and inadequate laundry, and no proper disinfecting apparatus. The hospital may, indeed, be considered to be both unsatisfactory and inadequate. The Medical Officer of Health, Mr. Warren, informs me that only about one-half of the cases notified in 1896 have been isolated there.

(2.) There is no disinfection of infected clothing or bedding. All that has been done in the way of disinfection has been sulphur fumigation of houses and rooms where infectious disease has occurred.

(3.) Exclusion of children from school on account of diphtheria in their families was carried out on the advice of the private medical practitioners, at the instance of the Medical Officer of Health. Further, two schools were closed, viz., the infant department of the Wesleyan School, and the Byron Road Board School. The former was closed for a fortnight from June 10th on the personal recommendation of the Medical Officer of Health. But at the expiration of that time the managers dismissed the scholars for the summer holidays, and the school was not re-opened until the end of July. The Byron Road Board School was closed from June 2nd to July 6th. This school, the number on the books of which is 932, and the average attendance at which during the month before closure was 785, is a well-built and well-arranged modern structure, under the management of the Gillingham and Grange School Board. No complaint or allegation as to any insanitary circumstances has ever been made against it, and I discovered none when I visited it.

The proceedings adopted with regard to the closure of Byron Road Board School came under a good deal of local criticism, and there will be advantage in dealing with this subject in some detail.

On May 30th, 1896, the Medical Officer of Health verbally intimated to the Chairman of the Gillingham and Grange School Board that closure of the Byron Road Board School was necessary. The grounds upon which he adopted this course were as follow :—

That of 26 cases of diphtheria notified in May 1896, 23 occurred in children attending one or other of the elementary schools : that of these 23 children 18 attended the Byron Road Board School ; that of these 18 Byron Road Board School attendants, 11 were the first to be attacked in the families to which they belonged ; that all the five cases of diphtheria notified on May 28th were attendants at that school ; that during the week May 24th to May 30th, there was a special incidence of diphtheria on the Byron Road Board School, whereas inquiry failed to show that attendants at the three other public schools of the district were being specially attacked ; that the special incidence on school children generally and on the Byron Road Board School in particular, had become a new phase of the outbreak.

On the conveyance by the Chairman of the School Board of the verbal intimation of the Medical Officer of Health to the School Management Committee on June 1st, the school at Byron Road was directed to be closed for a fortnight from June 2nd. On June 11th the Medical Officer of Health states that he attended the meeting of the School Board and recommended that Byron Road School should be kept closed for a week longer than the period originally specified, viz., until June 23rd.

There is, however, no entry of this recommendation in the minute book of the School Board, which contains the following : “ Dr. Warren attended, “ undertook to let clerk have list of children where there was infectious “ disease in the house, with a view to their being kept away until infection “ was supposed to be past.” In the minutes of the School Board meeting on June 25th it is stated : “ Clerk stated that he had seen Dr. Warren on the “ subject of re-opening of the schools, and the doctor had given it as his “ opinion that it would be unwise to do so at present, but thought that there “ was ground for hoping that they might be open for resumption of duty on “ July 6th.” At this meeting it was proposed, seconded, and carried by the acting chairman’s casting vote :—

“ That the Medical Officer of the district ” (meaning the Medical Officer of Health) “ having closed the Byron Road School (900 children) for over three “ weeks, and this Board having received no further report from the sanitary “ officer, consider the further closing to be unreasonable.” This resolution was reported in the local press, and it was regarded both by the Chairman of the School Board and others as a “ vote of censure ” on the Medical Officer of Health. In spite, however, of the resolution the Byron Road School remained closed until July 6th.

On July 3rd a special meeting of the School Board took place. The so-called “ vote of censure ” on the Medical Officer of Health was, after

what would appear to have been a heated discussion, rescinded by a large majority.

On July 9th, at an ordinary meeting of the School Board, a letter was ordered to be sent to the Gillingham Urban District Council embodying a resolution asking the latter Council to furnish the School Board with lists of children suffering from infectious disease, so that steps might be taken to exclude them from school. This letter was despatched on July 14th, and was referred by the Gillingham Urban District Council to their Medical Officer of Health. At the same meeting of the School Board on July 9th two letters were received from the Medical Officer of Health to the Gillingham Urban District Council, one (undated) giving his reason for having closed the Byron Road School on June 1st, the other (dated July 6th) giving his opinion that that school might then be re-opened.

The above proceedings call for comment, in connexion with the "Memorandum on the circumstances under which the closing of public elementary schools, or the exclusion therefrom of particular children, may be required in order to prevent the spread of disease." This memorandum embodies the terms of Article 88 of the Code of Regulations approved by the Lords of the Committee of Council on Education, which is to the following effect:—

"The Managers must at once comply with any notice of the sanitary authority of the district in which the school is situated, or any two members thereof, acting on the advice of the Medical Officer of Health, requiring them for a specified time, with a view to preventing the spread of disease, or any danger to health likely to arise from the condition of the school, either to close the school or to exclude any scholars from attendance, but after complying they may appeal to the Department if they consider the notice to be unreasonable."

From this document it will be seen that no recommendation, intimation, or request as to the closing of a school is valid unless it be in the form of a notice of either the local sanitary authority, or of any two members thereof; and that the duty and power of the medical officer of health in regard to school-closure is limited to advising his authority that such closure is requisite with a view to preventing the spread of disease.

In taking upon himself to deal in person with the school board, as with the chairman and the clerk, by conversation and correspondence with them, as well as by attendance at meetings of the School Board concerning matters in which his action should have been governed by Article 88 of the Education Code, the Medical Officer of Health acted irregularly, with whatever praiseworthy motive he was actuated. It was without doubt due to the frequent and close personal relations between the School Board and himself that led that Board to assume that they had a right to his services in connexion with school-operations, and this in turn led to the passing of the so-called "vote of censure" by a public body to whom the Medical Officer of Health stands in no official relation whatever. The Medical Officer of Health stated to me that the action which he took was largely due to the fact that in February 1896 he obtained the sanction of the Gillingham Urban District Council "to close schools in the district on account of diphtheria, if necessary;" but no such authorisation can in any way set aside the precise terms of Article 88 of the Code. In this case, too, any such authorisation must have been verbal only, for I can find no record of it in the minutes either of the Council or of its sanitary committee.

Again, the letter from the Medical Officer of Health, in which he stated, on July 6th, that he then considered "it fit for the Byron Road School to be re-opened," was equally irregular, in so far as it may have been meant to convey his personal permission to re-open the school. A public elementary school can only be closed for a specified time: without action on the part of the sanitary authority to rescind their notice before the expiration of the specified period, the school cannot properly be re-opened. The action of the Medical Officer of Health is limited, in this matter, to advising his authority whether the circumstances of the case warrant the rescinding of the notice; or, on the expiration of the term for which the closure was ordered, whether the notice should be renewed or not. If the notice is not renewed then, school operations naturally re-commence.

No systematic official machinery of exclusion from school of children from infected houses, as distinct from closure of schools, appears to have been put in force by the Medical Officer of Health before he determined on closure. As a private practitioner, he personally forbade children from infected households attending school for periods averaging six weeks. And the same course was followed generally by private practitioners in the district. But no action under Article 7 of the Board's Memorandum was taken by the Medical Officer of Health. It is therefore difficult to determine whether in this case school closure would have been rendered unnecessary by "carefully considered measures of exclusion" carried out systematically. Probably, however, closure was rendered inevitable by the large number of notified cases, and the consequent numerous centres of infection in the district. The Medical Officer of Health appears, indeed, to have had ample grounds for securing the closure of the Byron Road Board School.

It becomes evident, from what has been stated above, that the Medical Officer of Health, in his very proper desire to prevent the spread of diphtheria through the agency of the Byron Road School, acted in an irregular manner. It is also apparent, from the attitude of the Gillingham and Grange School Board, that they failed to apprehend the methods of limiting attendance at school which are authorised under the Code. But on June 11th they took a step which indicates that they had begun to better appreciate their relations to Mr. Warren, for they appointed him, first, at an annual salary, and later at a small fee per certificate, to grant certificates to parents of children who were unable to attend school by reason of sickness in their homes. On June 25th, they further instructed the Head Teachers to send children to Mr. Warren, if they had reason to suppose that they came from houses where infectious disease was prevalent. This office of "Medical Officer to the School Board" lapsed, however, early in July, owing to Mr. Warren having resigned it.

It remains to add that, at a meeting of the Gillingham Urban District Council on July 2nd, attention was drawn to the need for sending all notices under Article 88 to Managers of Schools in writing. The Medical Officer of Health was also requested in future to make written reports to the Council, giving his reasons whenever he considered it necessary to close any school.

It is, therefore, to be hoped that in the future the action of the Gillingham Urban District Council and of their Medical Officer of Health, in regard to the closure of elementary schools, or the exclusion from them of scholars from infected localities or houses, will be in strict accordance with the terms of the Education Code, under which alone any such action is intended to be taken, and under which alone it can be enforced.

R. DEANE SWEETING.

August 1896.
